

CLAIMS:

1. A fatigue evaluation apparatus, comprising:  
measuring means for measuring a concentration of amino acid in a body fluid; and  
evaluating means for evaluating a degree of fatigue by using as an index a measurement result obtained by the measuring means.
2. The fatigue evaluation apparatus according to Claim 1, wherein when the measurement result shows that the concentration of the amino acid is lower than a predetermined value, the evaluating means determines that the degree of fatigue is high.
3. The fatigue evaluation apparatus according to Claim 1 or 2, wherein when the measurement result shows that the concentration of the amino acid is lower than the predetermined value, the evaluating means determines that there is an overwork state due to accumulation of physiological acute fatigue developed in daily life.
4. The fatigue evaluation apparatus according to any one of Claims 1 to 3, wherein the body fluid is at least one type of body fluid selected from a group consisting of

blood, saliva, cerebrospinal fluid, and urine, all of which have been separated from an individual organism.

5. The fatigue evaluation apparatus according to any one of Claims 1 to 4, wherein the amino acid is at least one type of amino acid selected from a group consisting of total amino acids, branched-chain amino acids, aromatic amino acids, cysteine, methionine, lysine, arginine, and histidine.

6. The fatigue evaluation apparatus according to any one of Claims 1 to 5, wherein a target for evaluation of the degree of fatigue is physiological acute fatigue developed in daily life, particularly mental fatigue.

7. The fatigue evaluation apparatus according to any one of Claims 1 to 6, wherein:

the measuring means measures respective concentrations of the amino acid in the body fluid before and after a subject is subjected to fatigue loading , and

the evaluating means evaluates the degree of fatigue by using as an index a change in concentration of the amino acid in the body fluid between before and after the fatigue loading, based on the measurement result obtained by the measuring means.

8. A fatigue evaluation method for evaluating a degree of fatigue by using as an index a concentration of amino acid in a body fluid.

9. The fatigue evaluation method according to Claim 8, wherein when the concentration of the amino acid is low, it is determined that the degree of fatigue is high.

10. The fatigue evaluation method according to Claim 8 or 9, wherein when the concentration of the amino acid is low, it is determined that there is an overwork state due to accumulation of physiological acute fatigue developed in daily life.

11. The fatigue evaluation method according to any one of Claims 8 to 10, wherein the body fluid is at least one type of body fluid selected from blood, saliva, cerebrospinal fluid, and urine.

12. The fatigue evaluation method according to any one of Claims 8 to 11, wherein the amino acid is at least one type of amino acid selected from total amino acids, branched-chain amino acids, aromatic amino acids, cysteine, methionine, lysine, arginine, and histidine.

13. The fatigue evaluation method according to any one of Claims 8 to 12, wherein a target for the degree of fatigue is physiological acute fatigue developed in daily life, particularly mental fatigue.

14. The fatigue evaluation method according to Claims 8, wherein the degree of fatigue is evaluated by using as an index a change in concentration of the amino acid in the body fluid between before and after fatigue loading.

15. A fatigue evaluation kit for carrying out a fatigue evaluation method according to any one of Claims 8 to 14.

16. A method for measuring an anti-fatigue effect of an anti-fatigue substance, the method measuring the anti-fatigue effect of the anti-fatigue substance by using the fatigue evaluation apparatus, the fatigue evaluation method, or the fatigue evaluation kit according to any one of Claims 1 to 15.

17. A method for evaluating an anti-fatigue effect of an anti-fatigue substance, the method comprising the processes of:

administering the anti-fatigue substance to a subject

in a fatigue state;

determining whether or not the subject has recovered from fatigue, by using the fatigue evaluation apparatus, the fatigue evaluation method, or the fatigue evaluation kit according to any one of Claims 1 to 15; and

evaluating the anti-fatigue effect of the anti-fatigue substance by using as an index a degree to which the subject has recovered from fatigue.

18. An anti-fatigue effect evaluation system, comprising:

a first fatigue evaluation apparatus according to any one of Claims 1 to 7 for evaluating a degree of fatigue of a subject to whom an anti-fatigue substance has been administered; and

a second fatigue evaluation apparatus for evaluating an anti-fatigue effect of the anti-fatigue substance by using as an index a degree to which the subject has recovered from fatigue, based on an evaluation result obtained by the first fatigue evaluation apparatus.

19. A method for screening a candidate substance for an anti-fatigue substance, the method comprising the processes of:

administering a test article to a model animal in a

fatigue state;

determining whether or not the model animal has recovered from fatigue, by using the fatigue evaluation apparatus, the fatigue evaluation method, or the fatigue evaluation kit according to any one of Claims 1 to 15; and

determining that the test article is a candidate substance for an anti-fatigue substance, by using as an index the model animal's recovery from fatigue.